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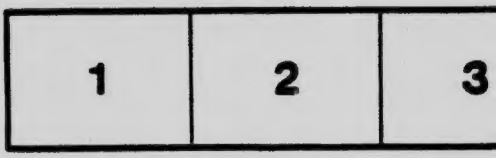

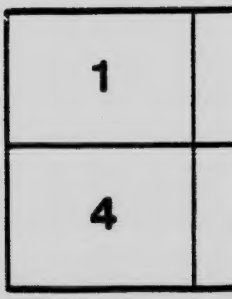

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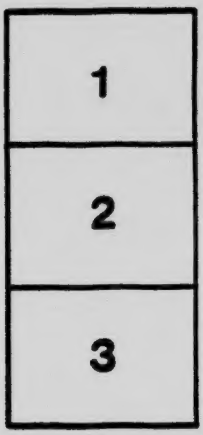

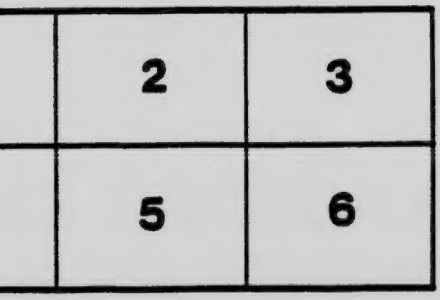

GOVERNMENT OF THE PROVINCE OF SASKATCHEWAN
Department of Agriculture

BETTER BELT LACING

By J. MACGREGOR SMITH, B.S.A.
Professor Agricultural Engineering, College of Agriculture, University of Saskatchewan

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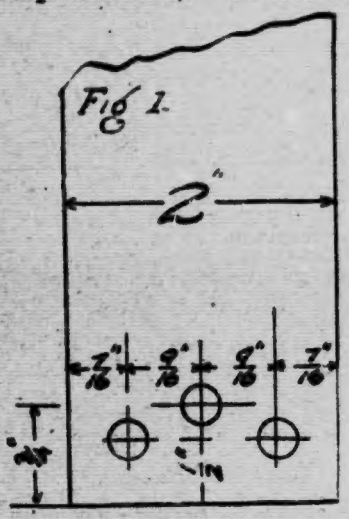
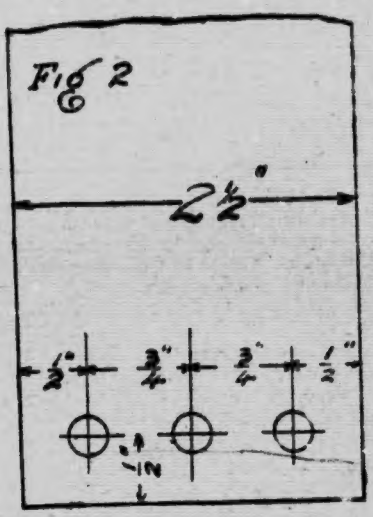
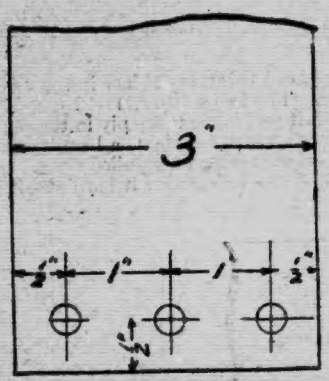
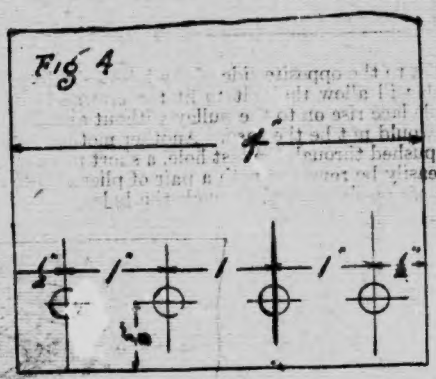
Practically every farmer owns and operates an engine, a feed grinder or some other power machine. He should be able to lace a belt. To the average man belt lacing always appears to be a very mysterious operation and in threshing time the whole gang gathers round the separator man as if he were a wizard, when he is lacing a broken belt. The methods of lacing belts are





legion and it is impossible to state which is the best, because there are many good ways. We do not want to convert you to our way of doing it, but if you have not already a very definite system, we will, by means of diagrams endeavor to show clearly three different ways and they will fulfill your requirements. With a little practice you can readily "catch on."





First of all, what is our problem? It is to make a smooth joint and one that will be as strong as the belt itself. The first step is to cut the ends of the belt square. Use a small try square. This is important and takes no more time than it does to do it as shown in Fig. 8. Next is the location of the holes. For small leather belts one row of holes will be found sufficient and should be spaced with some relation to the size of the belt.

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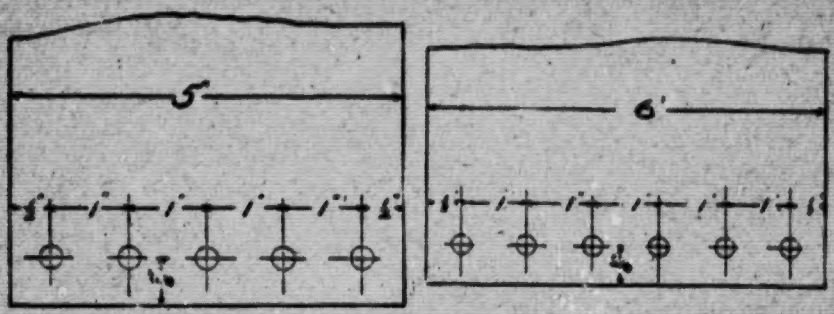
Figs. 1, 2, 3, and 4 show a single row of holes in each case. Fig. 7 shows a double row especially adapted to rubber and canvas belts. Fig. 8 shows how the work should not be done. With leather belts use a good belt punch, but for rubber and canvas belts the holes should be made with an awl and not with a hollow punch, which cuts off many strands and materially weakens the belt. The tine of an old pitchfork makes a very good tool after being sharpened a little at the point, the other end being bent to form a handle.

SINGLE LACING

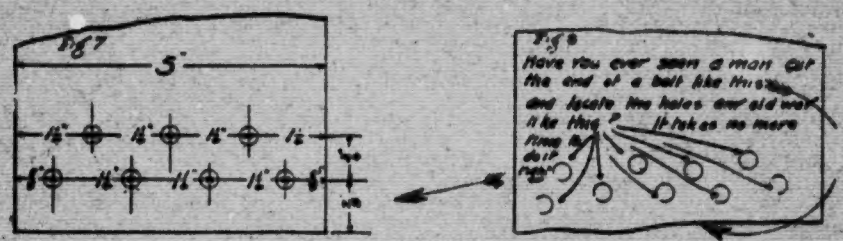
Fig. 9 shows an example of single lacing. The lace is straight on the pulley side and crosses on the side away from the pulley. Starting on the pulley side the ends are put through the holes 1, 1, and then across to 2, 3, 4 and 5, here the lace is again put through hole 4 (marked 6) and



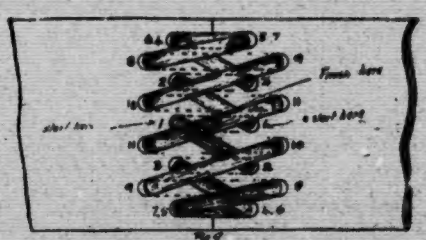
hole 5 (marked 7) then to 8, 9, 10 and 11, the other half of the belt is finished in exactly the same way. There are different ways of finishing, either a square knot can be tied, or the ends tucked in around some of the other laces. In case the belt runs over an idle pulley a good way to finish it would be to run from 11 to 1 in both cases and punch another hole at the point indicated by X, and finish as in Fig. 10.

DOUBLE LACING

Fig. 10 shows an example of this lace. The lace is straight and double on the pulley side and crossed on the side away from the pulley. Starting up through the holes 1, 1, follow the holes as numbered to the position 10 (which is also the first hole). From 9 the lace goes down through 10 up through 11, down through 12 and up through 11 again. When it is pulled tight the same



applies to the opposite side of the joint. This will leave only one thickness of lace in the middle, which will allow the belt to fit the crowned pulley better. The loops 10-11, 11-12 makes the double lace rise on to the pulley without any jar, whereas, if it was made three ply in the middle this would not be the case. Another method of finishing is shown to the right, a loop is formed and pushed through the last hole, a short piece of lace is inserted and the loop pulled tight. This can easily be removed with a pair of pliers. Burning the end of a lace makes it hard and it can be more easily pushed through the holes.



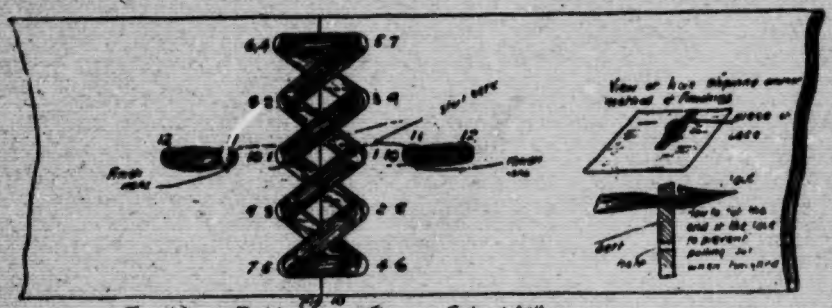
DOUBLE HINGE LACE

The single hinge lace is similar, t[illegible]ly difference being the lace passes through each hole once instead of twice. Therefore we [illegible] not go into details with it. The double hinge lace is harder to describe but by the aid of numbers we hope to make it clear. Starting as shown in Fig. 11 the path of the lace B is as follows:

Between b	lt	1	and belt	2	and up through hole		2	;	then
"	"	1	"	2	"	"	"	1	; "
"	"	1	"	2	"	"	"	3B	; "
"	"	1	"	2	"	"	"	4B	; "
"	"	1	"	2	"	"	"	3B	; "
"	"	1	"	2	"	"	"	4B	; "
"	"	1	"	2	"	"	"	5B	; "
"	"	1	"	2	"	"	"	6B	; "
"	"	1	"	2	"	"	"	5B	; "
"	"	1	"	2	"	"	"	6B	; "
"	"	1	"	2	"	"	"	7B	; "
"	"	1	"	2	"	"	"	8B	; "
"	"	1	"	2	"	"	"	7B	; "
"	"	1	"	2	"	"	"	8B	; "
"	"	1	"	2	"	"	"	9B	; "
"	"	1	"	2	"	"	"	10B	; "
"	"	1	"	2	"	"	"	9B	; "
"	"	1	"	2	"	"	"	10B	; "

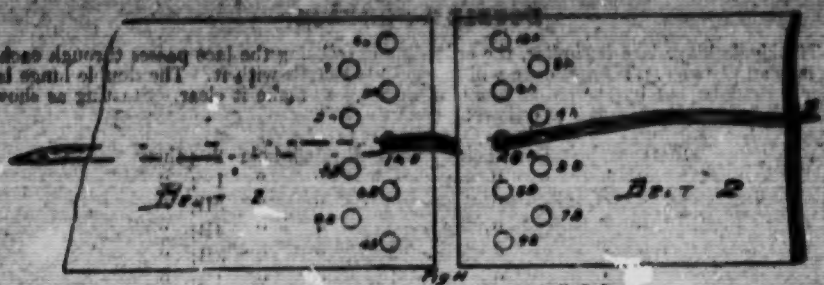
Lace A goes between belts 1 and 2 and down through hole 2 ; then

"	"	1	"	2	"	"	"	3A	; "
"	"	1	"	2	"	"	"	4A	; "
"	"	1	"	2	"	"	"	3A	; "
"	"	1	"	2	"	"	"	4A	; "
"	"	1	"	2	"	"	"	5A	; "
"	"	1	"	2	"	"	"	6A	; "
"	"	1	"	2	"	"	"	5A	; "
"	"	1	"	2	"	"	"	6A	; "
"	"	1	"	2	"	"	"	7A	; "
"	"	1	"	2	"	"	"	8A	; "
"	"	1	"	2	"	"	"	7A	; "
"	"	1	"	2	"	"	"	8A	; "
"	"	1	"	2	"	"	"	9A	; "
"	"	1	"	2	"	"	"	10A	; "
"	"	1	"	2	"	"	"	9A	; "
"	"	1	"	2	"	"	"	10A	; "

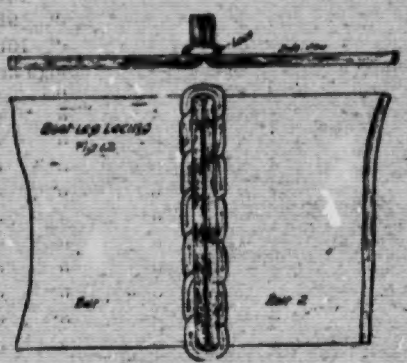


Example of Double Lacing Showing Side of belt away from the Pulley.

This lace is recommended for a belt running over small pulleys, as a windstacker. It is also good for a drive belt. The advantage of beginning at the center of the belt is that two men can lace at the same time, one to the right and the other to the left. However all laces shown can be started at one side if desired. Care being taken not to pull it too tight. One end should not be put through two holes in succession, and both ends of the lace must be passed between the ends of the belt to the opposite side before either is put through the next hole.



Regarding the "Bootleg" lace we have had no experience, but one writer says: "Wherever possible, especially for rubber and cotton belts, the bootleg lacing is used, but it must be confessed this form lacks much of popularity. In respect that it gives uniform and continuous belt contact; in that good stout twine serves for it as well as the most expensive whang leather; in that it is easily and quickly made; and that it will outlast any other lacing known, it is pretty nearly perfect. In that it looks 'perfectly horrid' and in that it is quite likely to knock a thumb off an incautious operator or spectator, it is imperfect. This form of lacing is called 'bootleg' not because of any relation to booze but because it is made exactly as the old-fashioned bootlegs were sewn up."



Some readers may be able to tell what their experience has been with this type or with any especially good forms they may have used.

In closing let us remind you that a leather belt runs with the hair or smooth side next to the pulley, and a rubber belt with the seam (near the center of one side) away from the pulley.